Cardiothoracic Surgery

Chair
- Ronald J. Weigel

Faculty: https://medicine.uiowa.edu/surgery/people/primary-appointments
Website: https://medicine.uiowa.edu/surgery/divisions/cardiothoracic-surgery/

The University of Iowa cardiothoracic surgery program is the third oldest program of its kind in the United States. Since its establishment in 1948 as a division within the Department of Surgery, the program has advanced from providing operative interventions for patients with diseases of the chest to performing a broad range of the most current and innovative surgical procedures.

Cardiothoracic Surgery’s facilities are located at University of Iowa Hospitals and Clinics. Each year cardiothoracic surgeons at the hospitals perform more than 500 adult and pediatric heart surgeries, including coronary bypasses, transplants, and placement of mechanical cardiac assist devices; minimally invasive procedures such as mitral valve replacement and epicardial lead placement; and more than 600 general thoracic surgeries with emphasis on esophageal and lung diseases. Preparations are underway for performing coronary artery bypass grafting using robotics.

Postbaccalaureate Training
The division plays a primary instructional role in University of Iowa Hospitals and Clinics’ 20-month postbaccalaureate Perfusion Technology Program; see the perfusion courses listed under Courses [p. 1] in this section of the Catalog. For more information about the Perfusion Technology Program, contact Cardiothoracic Surgery or visit the Perfusion Technology Program website.

Research
University of Iowa cardiothoracic surgeons are leaders in clinical research, particularly in oncologic surgery, diseases of the esophagus, artificial organs, pediatric cardiac surgery, and transplantation. Research also is under way in the sequence of mutations and in localization of genes predisposed to cancer.

M.D. Training
The division trains fourth-year M.D. students in two courses, CTS:8401 Subinternship in Cardiothoracic Surgery and CTS:8497 Research in Cardiothoracic Surgery.

Residency
Iowa's cardiothoracic surgery residency program was established in 1948 and is fully accredited by the Accreditation Council for Graduate Medical Education (ACGME). It is the only cardiothoracic surgery training program in Iowa. One resident is accepted into the two-year program each year.

In 2015, cardiothoracic surgery was approved by the ACGME to start a six-year integrated thoracic residency. Medical students begin the program after they graduate from medical school. A new resident enters the program each year.

Facilities
Cardiothoracic surgery has specialty laboratories in gastric motility, analytical chemistry, transplantation, tissue culture, surgical bacteriology, shock, and cardiac bypass. These facilities permit study of experimental procedures such as heart valve replacement in large animals and heterotopic heart transplantation in mice and rats.

The laboratories also are used for supervised teaching exercises in surgical technique for medical students and junior residents, and for refinement of technique for senior residents and faculty members.

Courses
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Cardiothoracic Surgery Courses

CTS:8401 Subinternship in Cardiothoracic Surgery    arr. Participation in diagnosis, preoperative, operative, and postoperative care of thoracic and cardiac patients; attendance at division conferences; students assume responsibility and act as an intern; may concentrate interest in cardiac surgery or thoracic surgery; diagnosis and management of patients on an inpatient service under close supervision by an upper-level resident/fellow and faculty member.

CTS:8497 Research in Cardiothoracic Surgery    arr. Work on a short- or long-term research project arranged with instructor; may involve clinical material or laboratory; students organize and complete a project, finishing with a publishable manuscript.

CTS:8499 Cardiothoracic Surgery Off Campus    4 s.h. Individually arranged by student with approval of department to rotate outside of the University of Iowa Hospitals and Clinics. Requirements: M.D. enrollment.

Perfusion Courses

PERF:4161 Instrumentation in Perfusion Technology    3 s.h. Electrical circuitry, filters, pressure transducers, thermistors, cardiac output computers, fluid dynamics, intra-aortic balloon pumps, blood gas analyzers. Requirements: Perfusion Technology Program enrollment.

PERF:4162 Pathophysiology of Perfusion Technology    5 s.h. Hemostasis, acid base physiology, gas transfer, heart anatomy, heart embryology, congenital cardiac defects. Requirements: Perfusion Technology Program enrollment.

PERF:4163 Clinical Experience I    2 s.h. Perfusion in operating room: patient workup, observation, and reporting on extracorporeal setup, surgical procedure. Requirements: Perfusion Technology Program enrollment.

PERF:4164 Clinical Experience II    3 s.h. Continuation of PERF:4163; setup of extracorporeal circuit; ancillary duties of perfusionist. Requirements: Perfusion Technology Program enrollment.
PERF:4165 Clinical Experience III 12 s.h.
Continuation of PERF:4164; management of cardiopulmonary bypass system. Requirements: Perfusion Technology Program enrollment.

PERF:4166 Clinical Experience IV 12 s.h.
Continuation of PERF:4165; emphasis on supply maintenance, perfusion department management. Requirements: Perfusion Technology Program enrollment.

PERF:4167 Perfusion Seminar 1 s.h.
Ethics in perfusion. Requirements: Perfusion Technology Program enrollment.

PERF:4168 Research in Perfusion 1 s.h.
From topic selection to manuscript. Requirements: Perfusion Technology Program enrollment.

PERF:4169 Clinical Experience V 12 s.h.
Continuation of PERF:4166. Requirements: Perfusion Technology Program enrollment.

PERF:4170 Principle and Practice of Perfusion Technology 6 s.h.
Hypothermia, hemodilution, left heart bypass, dialysis, ultrafiltration, membrane and bubbler oxygenation. Requirements: Perfusion Technology Program enrollment.

PERF:4171 Devices in Perfusion Technology 3 s.h.